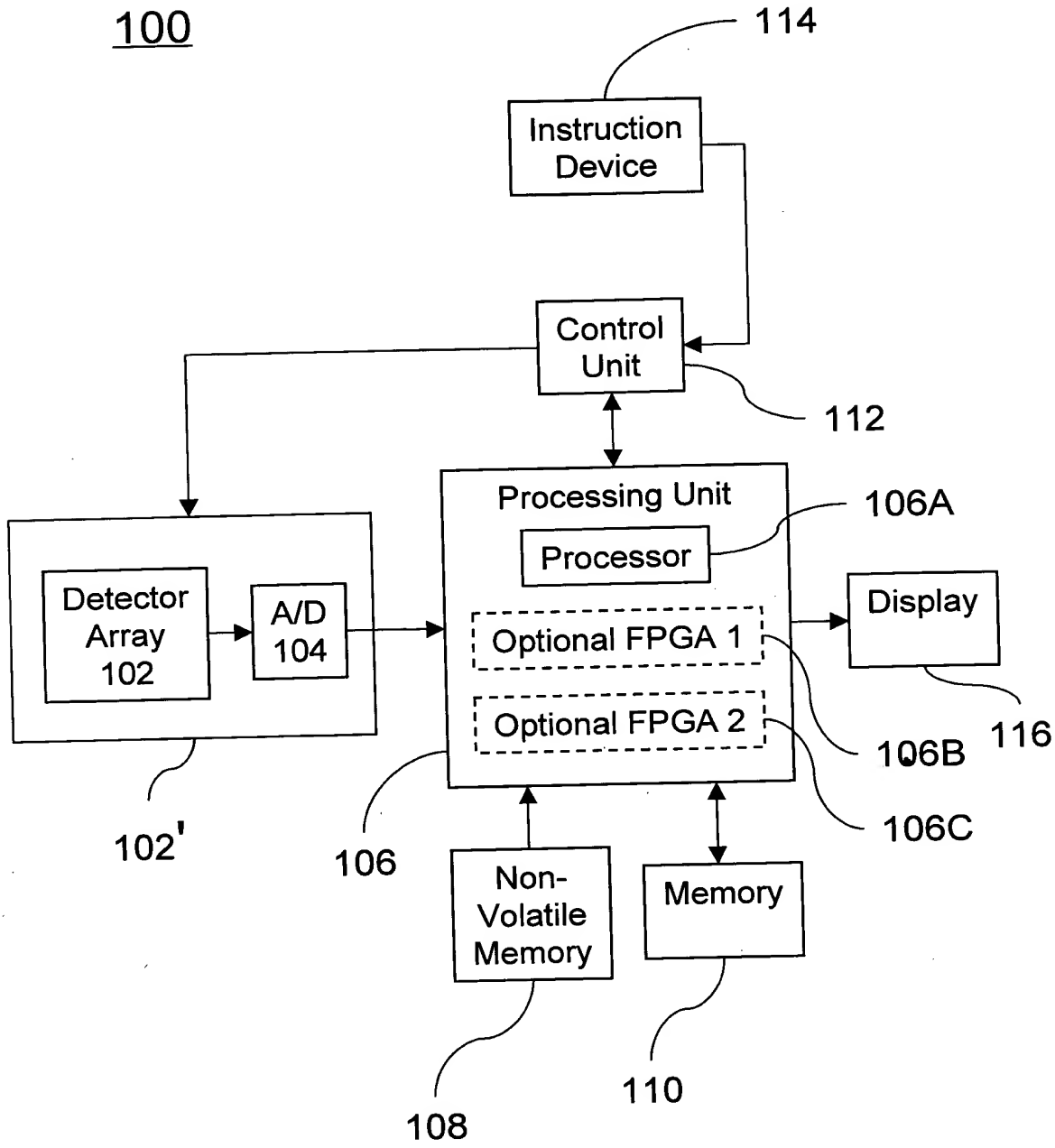
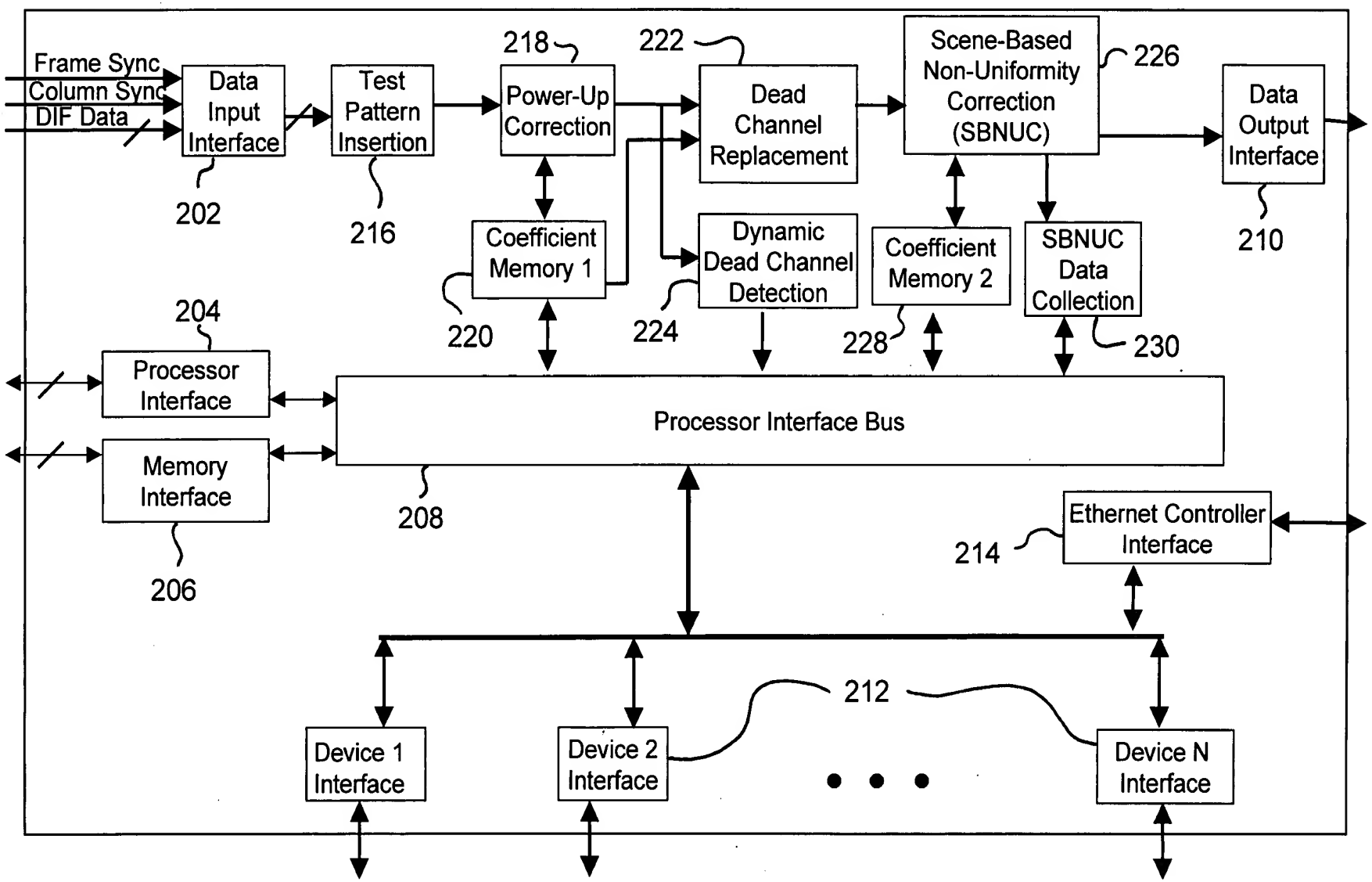

100
114
Instruction Device
Control Unit
112
Processing Unit
106A
Processor
Detector Array 102
A/D 104
Optional FPGA 1
Optional FPGA 2
Display
116
106B
106C
102'
106
Non-Volatile Memory
Memory
108
110

FIG. 1

SCANNED, #4

FIG. 2

200

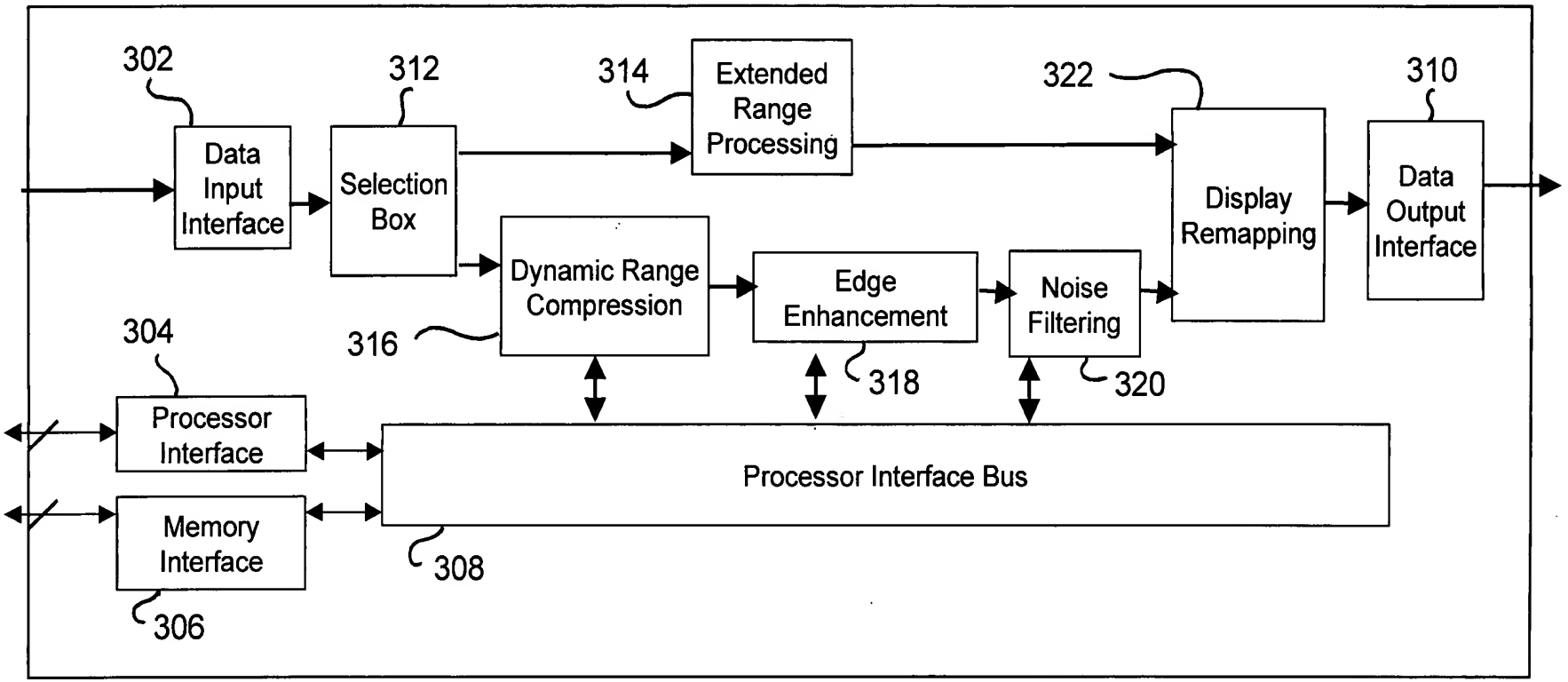


APPLN. FILING DATE: APRIL 25, 2001
TITLE: DYNAMIC RANGE COMPRESSION
INVENTOR(S): TIMOTHY ALDERSON ET AL.
APPLICATION SERIAL NO: N/A
SHEET 2 of 11

SCANNED, # 4

FIG. 3

300



APPLN. FILING DATE: APRIL 25, 2001
TITLE: DYNAMIC RANGE COMPRESSION
INVENTOR(S): TIMOTHY ALDERSON ET AL.
APPLICATION SERIAL NO: N/A
SHEET 3 of 11

400

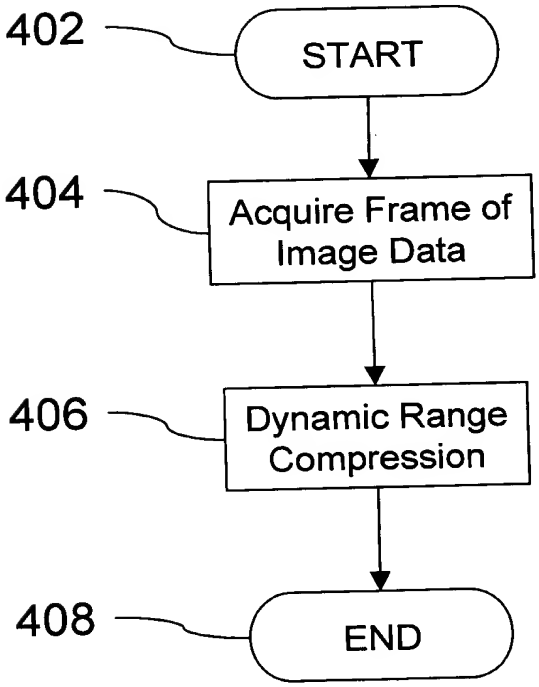


FIG. 4

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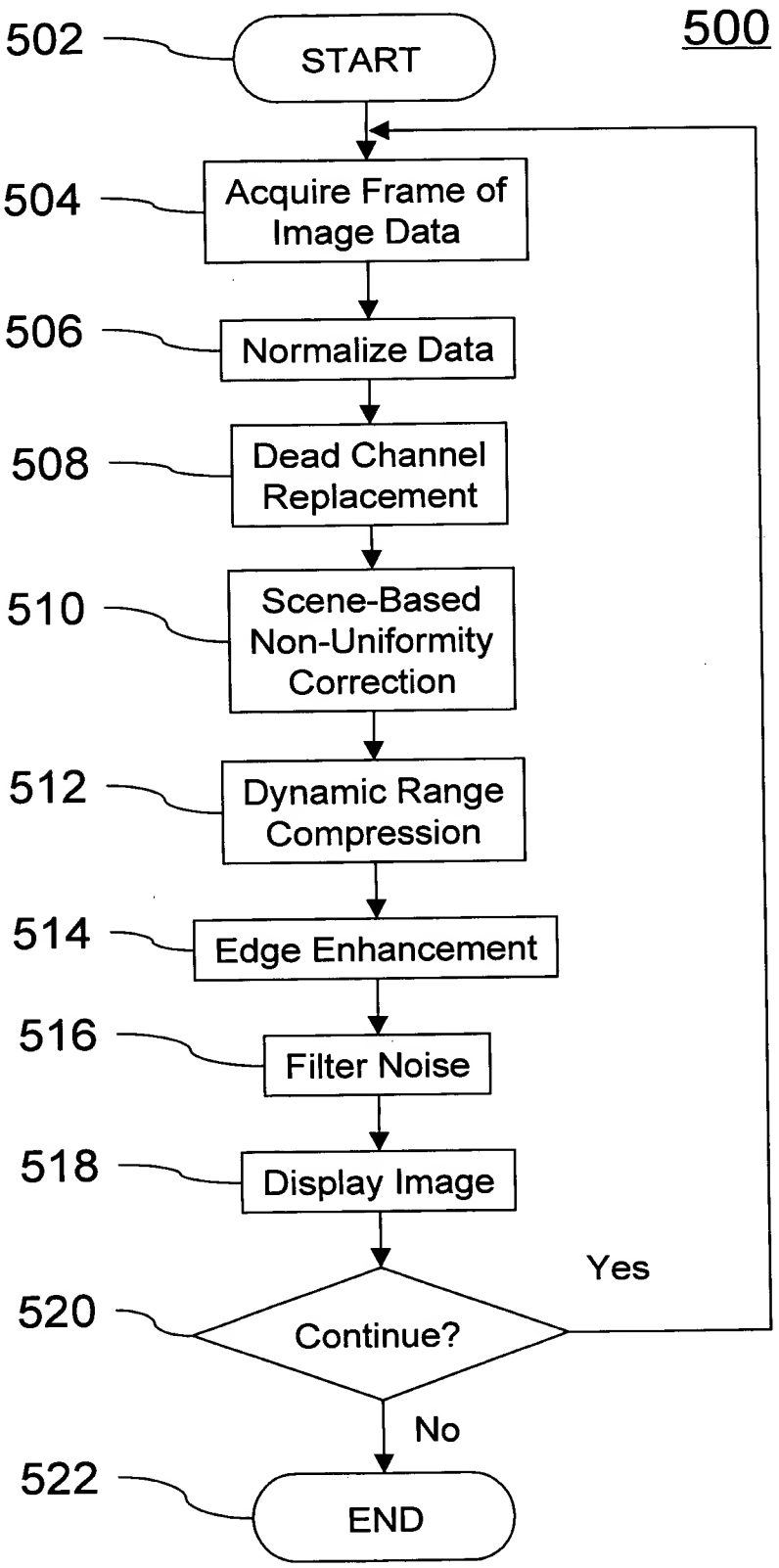
500
502
START
504
Acquire Frame of Image Data
506
Normalize Data
508
Dead Channel Replacement
510
Scene-Based Non-Uniformity Correction
512
Dynamic Range Compression
514
Edge Enhancement
516
Filter Noise
518
Display Image
520
Continue?
Yes
No
522
END

FIG. 5

-.1	-.1	-.1
-.1	.9	-.1
-.1	-.1	-.1

FIG. 6A

-.06	-.06	-.06	-.06	-.06
-.06	-.06	.94	-.06	-.06
-.06	-.06	-.06	-.06	-.06

FIG. 6B

.006	.012	.018	.018	.018	.012	.006
.012	-.036	-.124	-.124	-.124	-.036	.012
.018	-.024	-.106	.894	-.106	-.024	.018
.012	-.036	-.124	-.124	-.124	-.036	.012
.006	.012	.018	.018	.018	.012	.006

FIG. 6C

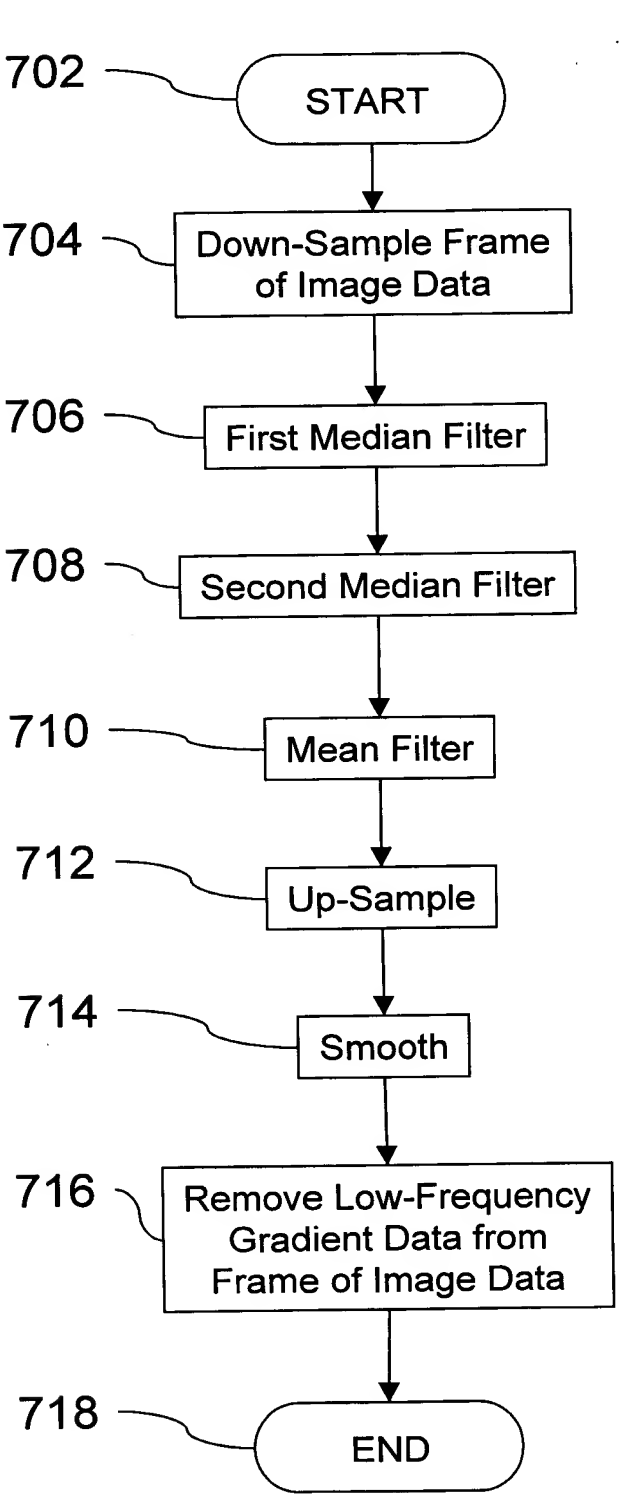
700
702
START
704
Down-Sample Frame of Image Data
706
First Median Filter
708
Second Median Filter
710
Mean Filter
712
Up-Sample
714
Smooth
716
Remove Low-Frequency Gradient Data from Frame of Image Data
718
END

FIG. 7

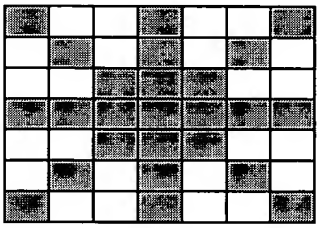

FIG. 8A

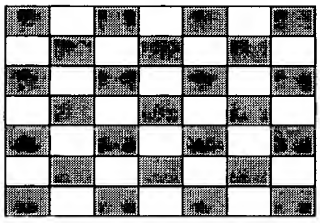

FIG. 8B

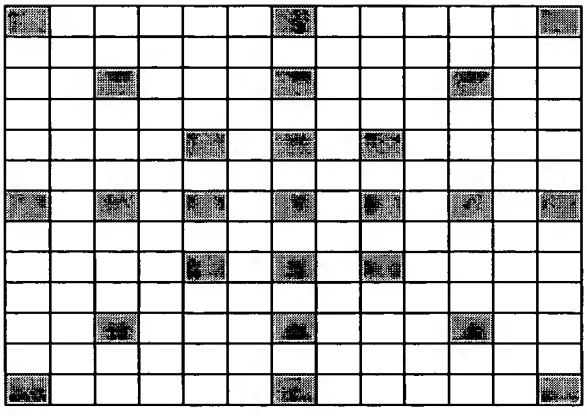

FIG. 8C

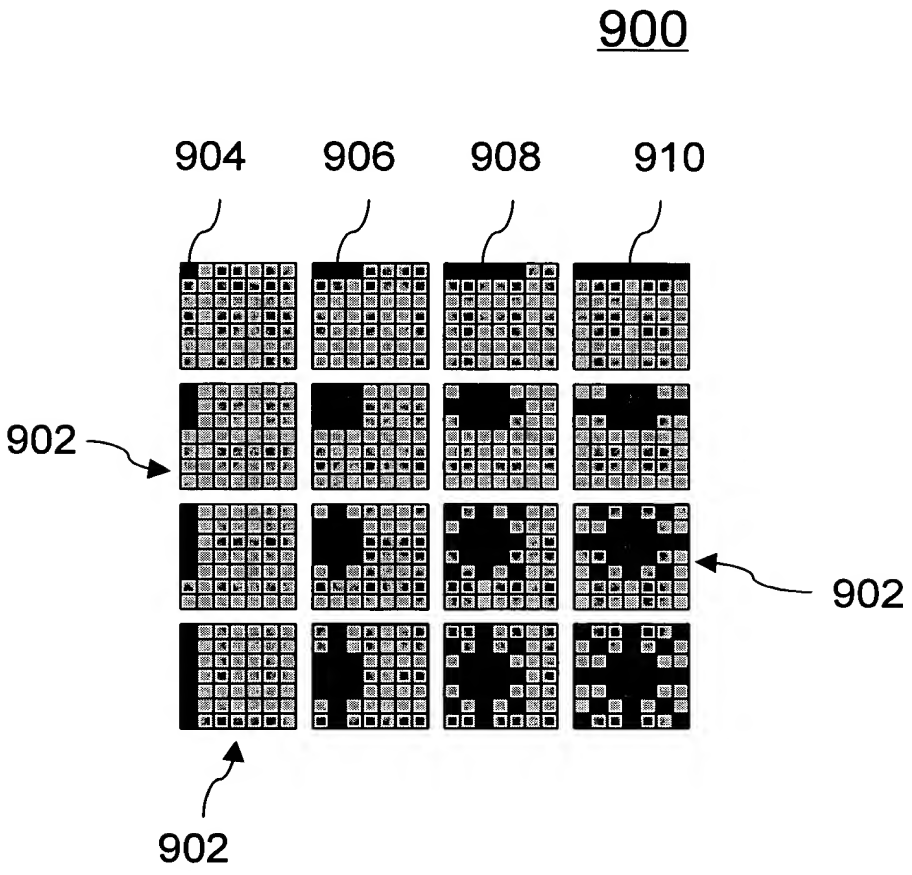

FIG. 9

4	2	4
3	1	3
4	2	4

FIG. 10

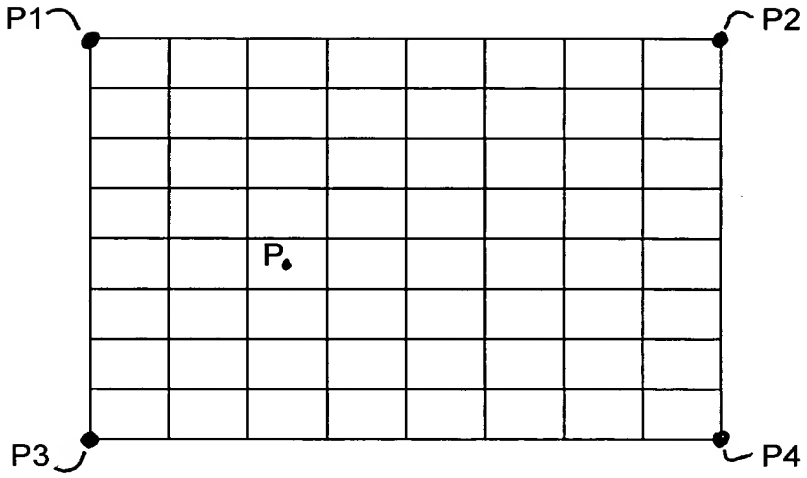

FIG. 11

1	1	3
1	1	3
2	2	4

FIG. 12

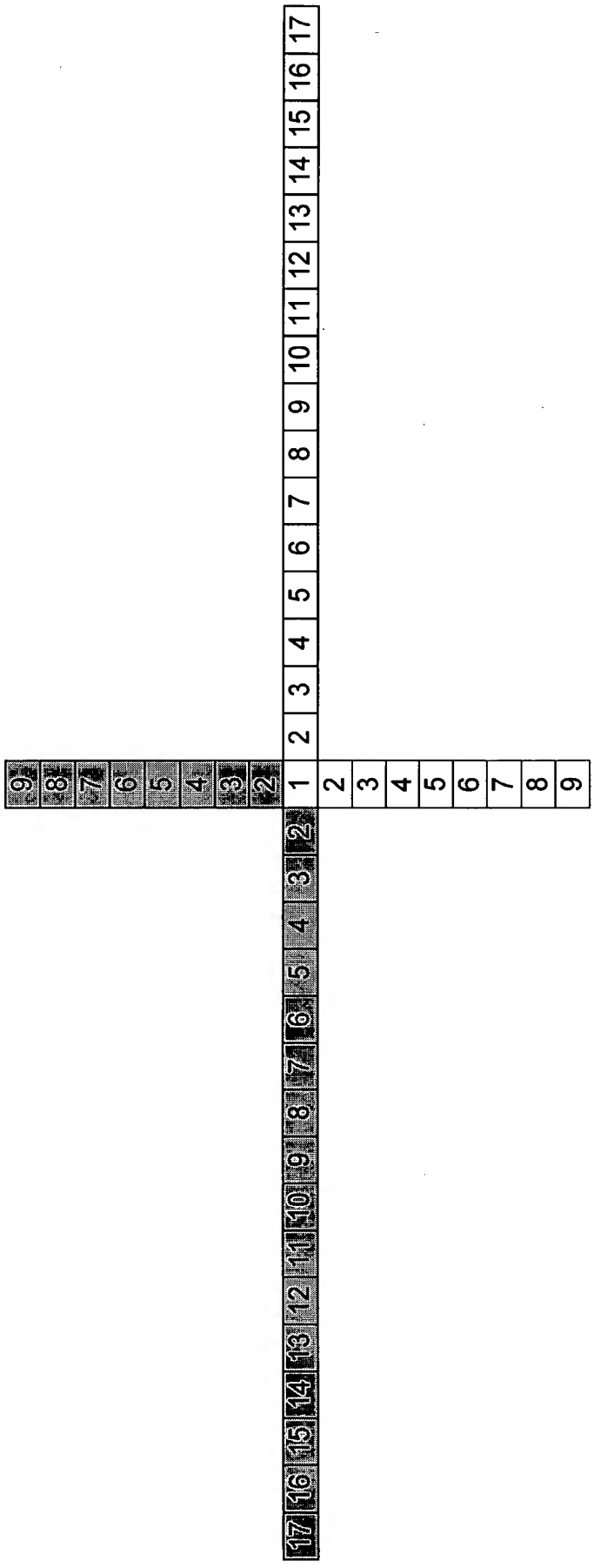
1 2 3 4 5 6 7 8 9
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
9 8 7 6 5 4 3 2 1

FIG. 13